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☐ I would like to receive future SEMINAR ANNOUNCEMENTS.

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HOTEL ACCOMMODATIONS:

The seminar will be at the Sheraton-Silver Spring, 8727 Colesville Road, Silver Spring, Maryland 20910. The hotel is holding a block of rooms for seminar participants until two weeks before the seminar. Costs of hotel rooms are not included in the tuition but reservations will be made by IAT upon registration if requested. Please indicate requirements on the enclosed reply card. Room rates are $13.00 for a single and $18.00 for a twin.

The Sheraton-Silver Spring is a mile from the Capital Beltway and is easily accessible to the entire metropolitan area and is serviced by direct limousine to Washington airports.

REGISTRATION:

Tuition, including all course materials and luncheons, is $385 per student. Registrations cancelled later than two weeks before the seminar are subject to a cancellation fee of $50. Checks should be made payable to Institute for Advanced Technology. Classes begin at 9:00 a.m. and end at 5:00 p.m.

OTHER COURSES

The Institute for Advanced Technology also offers seminars on a private, in-house basis. Fees will be quoted on request. Other seminars currently scheduled are:

- Basic Systems and Procedures Including Data Processing Concepts
- COBOL Programming
- Documentation and Debugging
- EDP Personnel Management for Line Managers
- Hospital & Medical Information Systems
- Management Information Systems
- Production Planning, Scheduling and Control
- Project Planning and Control Systems for Data Processing
- Survey of Techniques of Data Analysis
- Time-Sharing Systems

For an outline of these courses, or to be placed on the mailing list for seminar announcements, write:

REGISTRAR
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MULTIVARIATE ANALYSIS

A FIVE-DAY SEMINAR

WASHINGTON, D. C. • NOVEMBER 18-22

presented by

The Institute for Advanced Technology

C-E-I-R INC.

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MULTIVARIATE ANALYSIS

NOVEMBER 18 THRU 22

An advanced seminar for statisticians concerned with the most effective usage of multivariate analysis, that branch of statistical analysis which treats with the relationships of sets of dependent variates. It will also benefit those professionals now utilizing statistical comparison techniques in either the "hard" or "soft" sciences, from economists and psychologists to physicists and biologists. Instruction will focus on analytical themes rarely covered in standard statistical courses including component analysis and the analysis of functional relationships. Lectures will cover multivariate analysis as a connected whole, though the greater time will be spent on the less familiar branches of the subject. Note: Emphasis throughout the seminar will be on practical applications. Proficiency in computational methods will be taken for granted except where, as in component analysis, they are not commonly known.

A knowledge of mathematics of at least first-year undergraduate level is essential for full benefit from the course and students should know the theory of statistics up to first-year degree standard. Some knowledge of distribution theory and hypothesis testing as developed in the first two volumes of Kendall & Stuart is also desirable but it is not necessary to have read these volumes in detail.

SEMINAR OUTLINE

The seminar will cover the theoretical and practical aspects of multivariate analysis of continuous and discontinuous data. There will be approximately twenty-five hours of lecture and discussion on the following topics:

- Distribution theory: multivariate normal, Wishart, Hotelling distributions.
- Distribution of dispersion and correlation determinants and of eigen-values of dispersion determinants. Large sample theory.
- Tests of hypotheses: generalized analysis of variance. Multivariate regression tests of homogeneity, independence and sphericity.
- Component analysis: principal components and factor analysis. Interpretation and significance. Canonical correlations.
- Discrimination, Classification and Cluster Analysis: discriminant functions, problems and grouping and classifying. Distribution-free methods.
- Discarding redundant information.
- Practical examples.

The basic course material will be Chapters 41-44 of Kendall and Stuart's ADVANCED THEORY OF STATISTICS (VOLUME 3, Revised) and Kendall's monograph A COURSE IN MULTIVARIATE ANALYSIS. These texts, together with some notes on more recent work by the author on cluster analysis and the discarding of redundant variables, will be sent to participants upon receipt of registration.

The right to cancel the seminar or to amend the syllabus is reserved.

Dr. Maurice G. Kendall is a mathematical statistician of international stature. Prior to his association with Scientific Control Systems, Ltd., London, of which he is now chairman, Dr. Kendall was professor of statistics at the London School of Economics where he organized and directed the internationally renowned Division of Research Techniques. He is the author of numerous professional articles and books including such standard texts as *Introduction to the Theory of Statistics* and *Advanced Theory of Statistics (Three Volumes)*. He has served the British government in several high administrative positions and is active in many professional societies on both sides of the Atlantic. He earned M.A. and Sc.D. degrees from the University of Cambridge.

HOTEL ACCOMMODATIONS

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OTHER COURSES

The Institute for Advanced Technology also offers seminars on a private, in-house basis. Fees will be quoted on request. Other seminars currently scheduled are:

Computer-Assisted Instruction and Explanation

Computer Operations Management

Data Communications Systems

Introduction to EDP for Managers

Introduction to Management Science/Operations Research

Microfilm Information Systems

Nonlinear Programming

Optical Character Recognition

Statistics in Experimental Design

Urban Planning — Process and Problems

For an outline of these courses, or to be placed on the mailing list for seminar announcements, write:

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Institute for Advanced Technology

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Time-Series Analysis

A FIVE-DAY SEMINAR

WASHINGTON, D. C.
DECEMBER 9 - 13

presented by

The Institute for Advanced Technology

C-E-I-R INC.

a subsidiary of Control Data Corporation

Time-Series Analysis

An advanced seminar for statisticians and other professionals concerned with practical application of Time-Series Analysis techniques. It will provide a systematic exposition of the theory of time-series under the tutelage of Dr. Maurice G. Kendall, a leading international authority on statistical theory. Lectures will range over trend analysis, treatment of seasonal variations, analysis of stationary time series, spectral analysis, and forecasting.

Participants should have a knowledge of mathematics of at least first-year undergraduate level and should know the theory of statistics up to first-year degree standard. Some knowledge of distribution theory and hypothesis testing as developed in the first two volumes of Kendall & Stuart is also desirable but it is not necessary to have read these volumes in detail.

As time permits, numerical examples will be presented and machine computations illustrated from practical material.

The basic course material will be chapters 45-50 of Kendall & Stuart's ADVANCED THEORY OF STATISTICS (VOLUME 3, Revised). This text, plus lecture notes on forecasting, will be sent to participants upon receipt of registration.

SEMINAR OUTLINE

1. General Nature of Time Series Analysis
Continuous and discontinuous series
Calendar problems
Tests of randomness including distribution-free tests

2. Treatment of Seasonal Variation

3. Trend Analysis
Moving averages
Variate difference methods
Effect of trend removal on other constituents of the series

4. Analysis of Stationary Time Series
Autocorrelation and autoregression
Moving-average residuals
Markoff and Yule schemes

5. Sampling Theory of Serial Correlations
Large sample theory
Small samples from normal variation

6. Spectral Analysis
Power spectra and autocorrelation functions
Sampling theory of spectral ordinates
Smoothing methods and spectral windows

7. Forecasting
Short-term forecasting
Exponential methods
Long-term forecasting

The right to cancel the seminar or to amend the syllabus is reserved.

Dr. Maurice G. Kendall is a mathematical statistician of international stature. Prior to his association with Scientific Control Systems, Ltd., London, of which he is now chairman, Dr. Kendall was professor of statistics of the London School of Economics where he organized and directed the internationally renowned Division of Research Techniques. He is the author of numerous professional articles and books including such standard texts as *Introduction to the Theory of Statistics (Three Volumes)*. He has served the British government in several high administrative positions and is active in many professional societies on both sides of the Atlantic. He earned M.A. and Sc.D. degrees from the University of Cambridge.

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A SUBSIDIARY OF CONTROL DATA CORPORATION

The Institute for Advanced Technology

5272 RIVER ROAD ■ WASHINGTON, D. C. 20016 ■ (301) 652-2268 ■ CABLE: CEIR

Dear Sir:

The Institute for Advanced Technology invites your attendance at either or both of two forthcoming professional seminars to be conducted by Dr. Maurice G. Kendall, Chairman of Scientific Control Systems, Ltd., London, England, and one of the world's outstanding mathematical statisticians. These seminars -- one on Multivariate Analysis, the other on Time-Series Analysis -- are described in detail in the enclosed brochures, as are the professional background and accomplishments of Dr. Kendall.

Attendance at these seminars will be of benefit not only to professional statisticians interested in learning about work in progress at the frontiers of their discipline, but also to scientists, engineers and other professionals who utilize statistical techniques in their daily work. In these five-day seminars, participants will have the opportunity to analyze and discuss with Dr. Kendall problems in statistics most pertinent to their professional activities as well as explore the theoretical base for their solution. Both seminars have been conducted on several occasions in England, once in the United States -- all by Dr. Kendall -- and were well received by professional audiences in both countries. The Institute for Advanced Technology, in continuing its policy of offering only the finest in professional and managerial courses taught only by the best instructors, is pleased to announce our offering of these two outstanding seminars.

As a person professionally involved in statistical work, you owe it to yourself to take advantage of this latest offering from IAT. From past experience, it is anticipated that the courses will be well subscribed at an early date. To reserve your seat at one or both of these important seminars, I urge you to register today.

Very truly yours,

F. J. Karch

F. J. Karch
Director